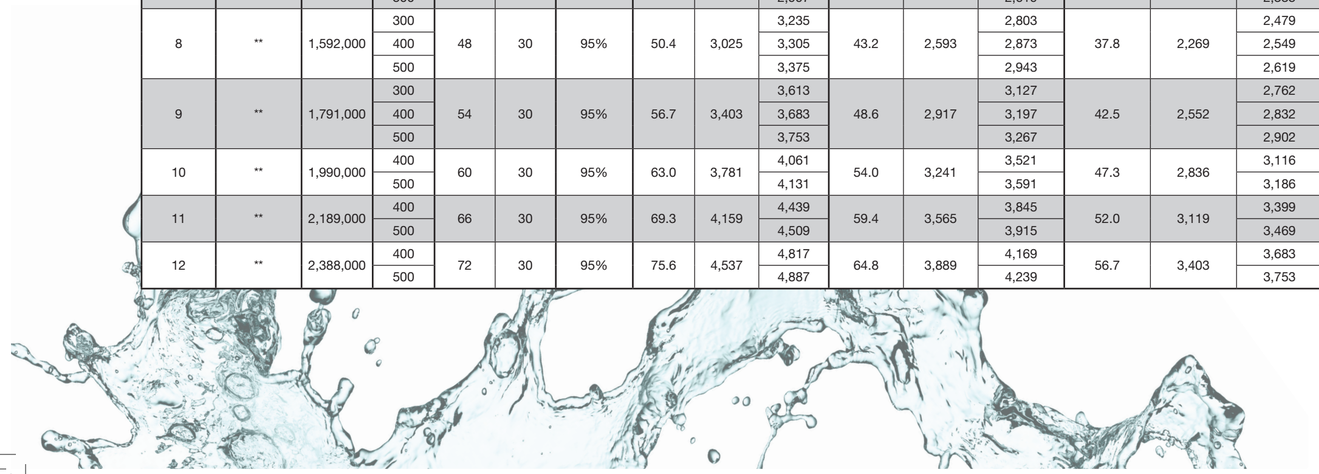
Performance Chart

FOR TANKLESS RACK SYSTEMS UTILIZING STORAGE

Recovery Capacity and First Hour Delivered @ Temperature rise (°F) with Storage Tank

Rack System Configurations							60° Temperature Rise			70° Temperature Rise			80° Temperature Rise			90° Temperature Rise			100° Temperature Rise		
Number of TWH	Model**	WH Max BTUH Input	Tank Size (Gal.)	Recovery Pump Size		Recovery Efficiency	Recovery GPM	Recovery GPH	First Hour Delivered (Gal.)	Recovery GPM	Recovery GPH	First Hour Delivered (Gal.)	Recovery GPM	Recovery GPH	First Hour Delivered (Gal.)	Recovery GPM	First Hour Delivered (Gal.)	Recovery GPM	Recovery GPM	Recovery GPH	First Hour Delivered (Gal.)
				GPM	Head (ft)																
2	TRW02/ TRS02	398,000	100	12	30	95%	12.6	756	826	10.8	648	718	9.5	567	637	8.4	504	574	7.6	454	524
			200						896			788			707			644			594
			300						966			858			777			714			664
3	TRW03/ TRS03	597,000	100	18	30	95%	18.9	1,134	1,204	16.2	972	1,042	14.2	851	921	12.6	756	826	11.3	681	751
			200						1,274			1,112			991			896			821
			300						1,344			1,182			1,061			966			891
			400						1,414			1,252			1,131			1,036			961
4	TRW04/ TRS04	796,000	100	24	30	95%	25.2	1,512	1,582	21.6	1,296	1,366	18.9	1,134	1,204	16.8	1,008	1,078	15.1	907	977
			200						1,652			1,436			1,274			1,148			1,047
			300						1,722			1,506			1,344			1,218			1,117
			400						1,792			1,576			1,414			1,288			1,187
			500						1,862			1,646			1,484			1,358			1,257
5	(TRW02 + TRW03) TRS05	995,000	200	30	30	95%	25.2	1,512	1,652	27.0	1,296	1,436	23.6	1,418	1,558	21.0	1,260	1,400	18.9	1,134	1,274
			300						1,722			1,506			1,628			1,470			1,344
			400						1,792			1,576			1,698			1,540			1,414
			500						1,862			1,646			1,768			1,610			1,484
6	TRS06	1,194,000	200	36	30	95%	37.8	2,269	2,409	32.4	1,945	2,085	28.4	1,701	1,841	25.2	1,512	1,652	22.7	1,361	1,501
			300						2,479			2,155			1,911			1,722			1,571
			400						2,549			2,225			1,981			1,792			1,641
			500						2,619			2,295			2,051			1,862			1,711
7	**	1,393,000	300	42	30	95%	44.1	2,647	2,857	37.8	2,269	2,479	33.1	1,985	2,195	29.4	1,764	1,974	26.5	1,588	1,798
			400						2,927			2,549			2,265			2,044			1,868
			500						2,997			2,619			2,335			2,114			1,938
8	**	1,592,000	300	48	30	95%	50.4	3,025	3,235	43.2	2,593	2,803	37.8	2,269	2,479	33.6	2,017	2,227	30.2	1,815	2,025
			400						3,305			2,873			2,549			2,297			2,095
			500						3,375			2,943			2,619			2,367			2,165
9	**	1,791,000	300	54	30	95%	56.7	3,403	3,613	48.6	2,917	3,127	42.5	2,552	2,762	37.8	2,269	2,479	34.0	2,042	2,252
			400						3,683			3,197			2,832			2,549			2,322
			500						3,753			3,267			2,902			2,619			2,392
10	**	1,990,000	400	60	30	95%	63.0	3,781	4,061	54.0	3,241	3,521	47.3	2,836	3,116	42.0	2,521	2,801	37.8	2,269	2,549
			500						4,131			3,591			3,186			2,871			2,619
11	**	2,189,000	400	66	30	95%	69.3	4,159	4,439	59.4	3,565	3,845	52.0	3,119	3,399	46.2	2,773	3,053	41.6	2,495	2,775
			500						4,509			3,915			3,469			3,123			2,845
12	**	2,388,000	400	72	30	95%	75.6	4,537	4,817	64.8	3,889	4,169	56.7	3,403	3,683	50.4	3,025	3,305	45.4	2,722	3,002
			500						4,887			4,239			3,753			3,375			3,072

** Note: Multiple configurations available. TRS models are Free-Standing units; TRW models are Wall-Mount units.Reference TRS Manual and Specification. If common venting is used with the TRS, please contact Rinnai for assistance.



Cross Reference for Existing or Specified Systems

Existing System		
Existing or Specified Systems BTUH	Storage Tank Size	Existing or Specified TE
400,000	As specified or existing	≥ 93%
600,000	As specified or existing	≥ 93%
800,000	As specified or existing	≥ 93%
1,000,000	As specified or existing	≥ 93%
1,200,000	As specified or existing	≥ 93%
1,400,000	As specified or existing	≥ 93%
1,600,000	As specified or existing	≥ 93%
1,800,000	As specified or existing	≥ 93%
2,000,000	As specified or existing	≥ 93%
2,200,000	As specified or existing	≥ 93%
2,400,000	As specified or existing	≥ 93%

DEFINITIONS:

Tank capacity: capacity of water in gallons inside storage tank as stated by manufacturer

Recovery pump: pump that will circulate water from tank to TRS during recovery period

Recovery flow rate: flow rate in gpm at which volume inside tank is being recovered

Recovery GPH: the water heater's ability to replenish hot water as it's drawn from the tank

Recovery efficiency: the ratio of energy delivered to the water to the energy content of the fuel consumed by the water heater

First Hour Delivered (Gal): useable volume of water that can be drawn in one hour and is determined using the following formula

First Hour Delivered (Gal) = Recovery GPH +Tank capacity x 0.70

Temperature rise: temperature difference in °F between the TRS set point and the incoming water temperature

Note:
This chart should be used only when the existing or specified system is known. Select TRS model to the left of chart. Use existing or specified storage tank with TRS selection. Reference chart to left for recovery GPH performance. To calculate "First Hour Delivered" add 70% of existing or specified tank volume to recovery GPH.

How to Select a TRS System Using TRS Performance Chart (Recovery GPH / First Hour Delivered Required):

Find value closest to specified recovery GPH or first hour delivered at temperature rise. Select corresponding TRS system, storage tank and recovery pump size to the left of the table.

For example: If specified First hour delivered is 900 gallons @60° F rise, select TRS system corresponding to 896 gallons:

TRS System: TRS02 or TRW02
Storage tank size: 200 gallons
Recovery pump size: 12 GPM @30 ft head

How to Select a TRS System Using TRS Cross Reference Chart:

Find existing or specified system BTUH and thermal Eff (TE) to the left of chart, match closely to TRS system BTUH and select TRS System with recovery pump accordingly.

For example: If existing or specified system BTUH is 400,000 and thermal Eff ≥ 93%

TRS System: TRS02 or TRW02
Storage tank size: as specified or existing
Recovery pump size: 12 GPM @ 30 ft head

Product Sizing Disclaimers

This Sizing Reference Guide and all information contained herein is based on the proper installation and use of (1) a series of Rinnai Tankless Water Heaters which are piped to a storage tank and (2) an adequate and properly-sized Recovery Pump that will recover the storage tank (i.e., that will circulate water from the Rinnai Tankless Water Heaters into the storage tank) thereby allowing the Rinnai Tankless Water Heaters to properly heat the water for the storage tank.

This Sizing Reference Guide is intended to be used as a guide only and not as a replacement for a professionally-engineered project. The guide should only be referenced after your design criteria has been selected and approved by your design engineer and/or contractor. The guide is intended to assist the user in determining the model type and number of products that can be utilized for a particular application. The information set forth herein is for general assistance and information only and should not be the sole factor in making any decision about a specific system or product.

For additional information, please refer to the Rinnai Hot Water System Design Manual or contact the Application Engineering Department at Rinnai America Corporation.

The information set forth herein regarding performance of a TRS/Storage tank system does not, and is not intended to imply, warrant, or represent that a specific system is adequate or appropriate for your given application.

The sizing information set forth herein does not describe a complete system. Anyone using this Sizing Reference Guide is ultimately responsible for determining the actual hot water demand for the specific application and for selecting appropriate Rinnai products for the given application.

Your design engineer and/or contractor must determine the necessary components for and configuration of the particular system being installed. All such design conditions must be met. The information contained herein does not imply compliance with local building codes. It is the responsibility of your design engineer and/or contractor to ensure that installation of any system is performed in accordance with all applicable building codes. You should always confer with local building officials before installation.

An adequate and properly-sized Recovery Pump is critical to the proper performance and operation of the systems described herein. Indeed, the systems described herein will only work with an adequate and properly-sized Recovery Pump.

Ensure that all water supply pipes are sized per local plumbing codes.

Multiple TRS should be installed in parallel using a secondary manifold from the building's cold and hot water supply. You should reference the particular section of the TRS installation manual for piping multiple racks.

The building's circulation pump must be controlled by an aquastat, timer, or both.

The Recovery Pump must be controlled by a submersible aquastat placed inside the tank. A minimum 20°F differential temperature setting is required for the aquastat. For example, if the Rinnai set point is 140°F, then the aquastat activation set point should be 120°F.

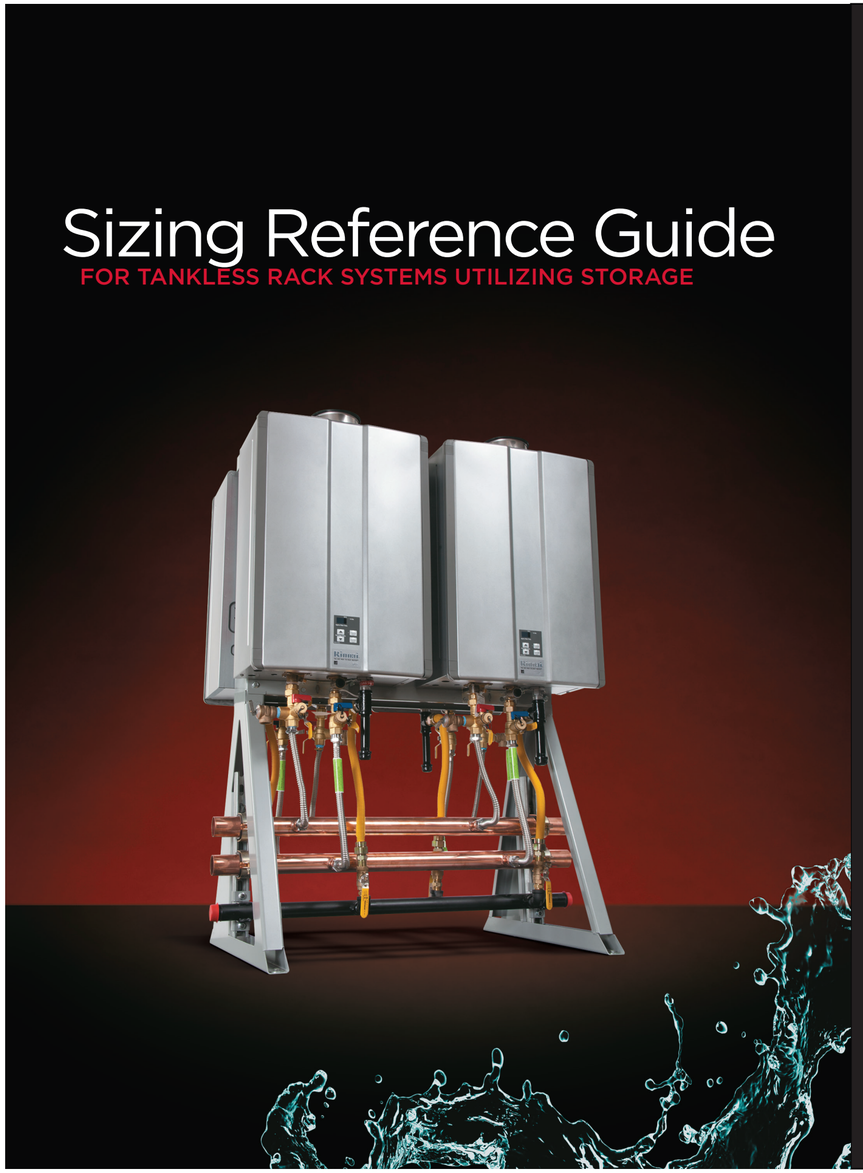
Always refer to the storage tank and aquastat manufacturer installation instructions for additional information.

Only use pumps of brass, bronze, or stainless steel construction. Do not use pumps of iron construction.

If the intended installation of a system is located in a hard water area, a softener or similar water treatment system must be used.

Sizing Reference Guide

FOR TANKLESS RACK SYSTEMS UTILIZING STORAGE



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